Bench Mark: BM #1 Square cut in top of wingwall SW corner of bridge S.N. 056-0009. Elevation 802.58
BM # 2 USGS Disk set in top of wingwall at NW corner of Bridge S.N. 056-0010. Elevation 802.33

Existing Structure: S.N. 056-0010 was rebuilt and widened in 1974 as F.A. Route 24 Section 23BR1. The original structure was built in 1925 as Route 23 Section 23. The structure consists of 3 simple spans using PPC box beams with closed abutments and solid piers. The back-to-back abutments is 159'-2½" and the out-to-out deck is 45'-6". Existing structure to be removed and replaced. Traffic will be detoured during construction.

No Salvage

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

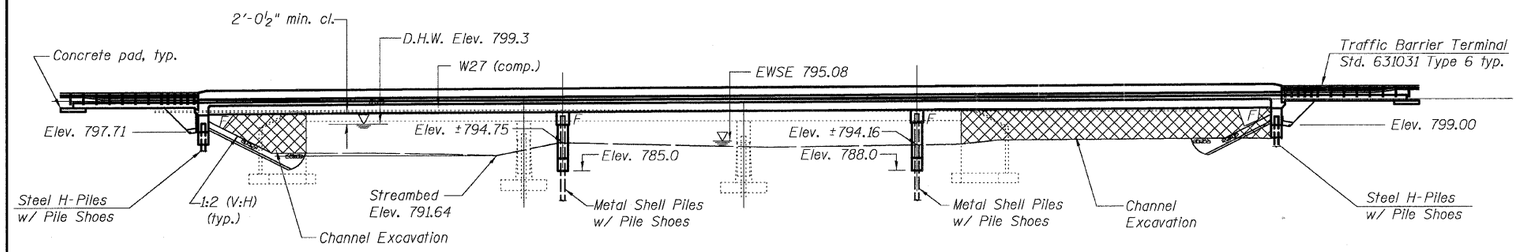
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.P. 324	23B-1	McHENRY	97	41
FED. ROAD DIST. NO. 1	ILLINOIS	FED. AID PROJECT-		

SHEET NO. 1
25 SHEETS

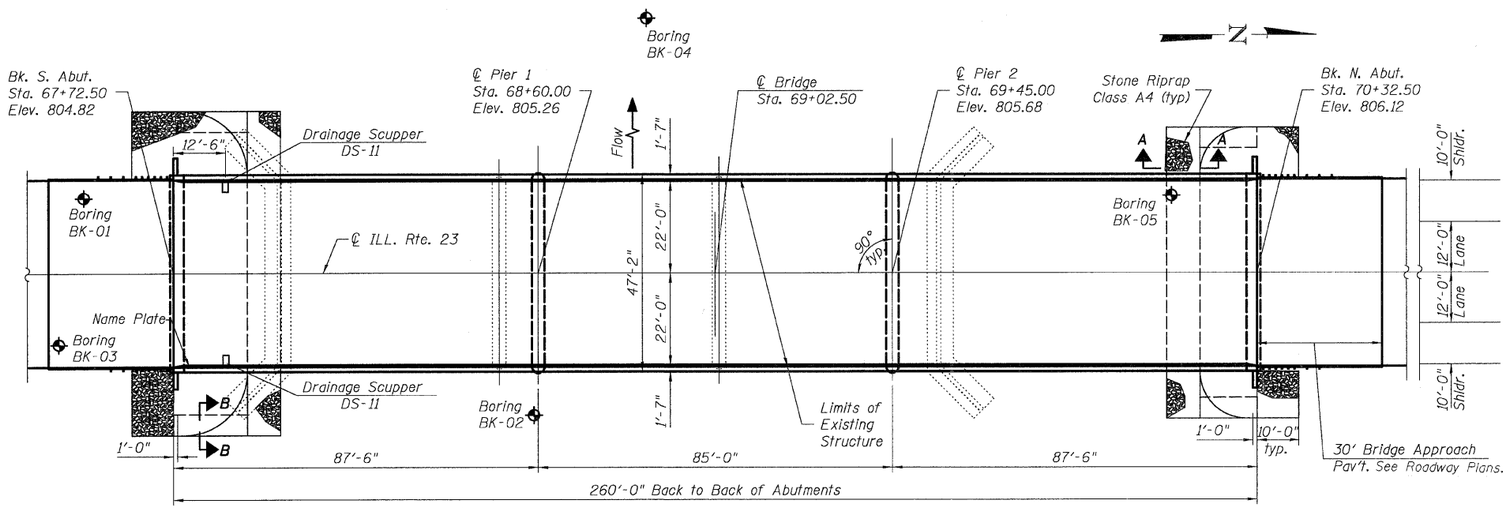
Contract # 62892

INDEX OF SHEETS

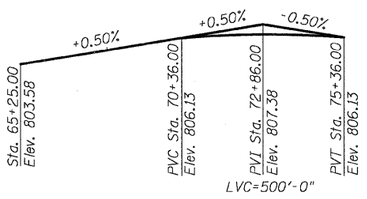
1 GENERAL PLAN
2 GENERAL DATA
3-6 TOP OF SLAB ELEVATIONS
7-8 TOP OF APPROACH SLAB ELEVATIONS
9-11 SUPERSTRUCTURE
12 FRAMING PLAN
13 FRAMING DETAILS
14 ABUTMENTS
15 PIERS
16-17 PILE DETAILS
18 BAR SPLICER DETAILS
19 DRAINAGE SCUPPER, DS-11
20 CANTILEVER FORMING BRACKETS FOR SUPERSTRUCTURE WITH W27 BEAMS OR SMALLER
21-25 BORING LOGS



ELEVATION



PLAN



PROFILE GRADE
(along ℄ IL 23)

DESIGNED	CJB
CHECKED	PWO
DRAWN	DRP
CHECKED	PJM

LOADING HL-93

Allow 50#/sq. ft. for future wearing surface.

SEISMIC DATA

Seismic Performance Zone (SPZ) = 1
Bedrock Acceleration Coefficient (A) = 0.034g
Site Coefficient (S) = 1.0

DESIGN SCOUR ELEVATION TABLE

Design Scour Elevation (ft.)	S. Abut.	Pier 1	Pier 2	N. Abut.
	795	785	788	796

DESIGN SPECIFICATIONS

2007 AASHTO LRFD Bridge Design Specifications

DESIGN STRESSES

FIELD UNITS
f'_c = 3,500 psi
f_y = 60,000 psi (reinforcement)
f_y = 50,000 psi (M270 Grade 50)
f_y = 36,000 psi (M270 Grade 36)

Note:
See sheet 2 of 25 for Section A-A and B-B.
Underwater Strucuture Excavation Protection
L1 is at Pier 1 and L2 is at Pier 2.

APPROVED
FOR STRUCTURAL ADEQUACY ONLY
Ralph E. Anderson
ENGINEER OF BRIDGES AND STRUCTURES

STATE OF ILLINOIS
CHRISTOPHER J. BURKE
081-005134
11/30/2010
REGISTERED STRUCTURAL ENGINEER

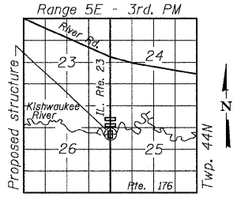
WATERWAY INFORMATION

Drainage Area = 174.5 mi²
Exist. Low Grade Elev. 800.30 @ Sta. 81+00
Prop. Low Grade Elev. 803.60 @ Sta. 81+00

Flood	Freq. Yr.	Structure	Q C.F.S. Exist.	Q C.F.S. Prop.	Opening SqFt. Exist.	Opening SqFt. Prop.	Nat. H.W.E.	Head - Ft. Exist.	Head - Ft. Prop.	Headwater El. Exist.	Headwater El. Prop.
Design	10	Main Channel	3441	2559	767.0	1057.0					
		Overflow 1	1874	2133	389.2	304.9					
		Overflow 2	n/a	623	n/a	95.5					
		Total	5315	5315	1156.2	1457.4	798.61	1.13	0.70	799.74	799.31
	50	Main Channel	4951	4328	875.0	1228.3					
		Overflow 1	2679	2453	429.9	330.8					
		Overflow 2	17*	866	n/a	130.1					
		Total	7647	7647	1304.9	1689.2	799.33	1.39	0.77	800.72	800.10
Base	100	Main Channel	5858	5015	914.0	1287.4					
		Overflow 1	2546	2582	442.6	340.2					
		Overflow 2	177*	983	n/a	142.6					
		Total	8581	8581	1356.6	1770.2	799.59	1.71	0.80	801.32	800.39
Max. Calc.	500	Main Channel	6944	6824	995.0	1402.5					
		Overflow 1	3076	2676	469.1	359.6					
		Overflow 2	699*	1219	n/a	168.5					
		Total	10719	10719	1464.1	1930.7	800.13	2.03	0.87	802.16	801.00

10 year velocity through existing bridge (main channel)= 3.76 fps
10 year velocity through proposed bridge (main channel) = 2.12 fps

Notes:
1. * Indicates flow over the road in existing condition.
2. A 2 foot berm/wall will be built at the upstream side of Overflow 2 structure, to maintain existing drainage patterns.
3. Overflow 1 is the 3-cell box culvert in the overflow channel, Overflow 2 is the 4-cell box culvert north of Overflow 1.



LOCATION SKETCH

V3 Companies of Illinois Ltd.
7325 Janes Avenue
Woodridge, IL 60517
630.724.9200 phone
630.724.9202 fax
www.v3co.com

GENERAL PLAN
ILL. ROUTE 23 OVER
KISHWAUKEE RIVER
F.A.P. RT. 324
MCHENRY COUNTY
STATION 69+02.50
STRUCTURE NO. 056-0001